Douglas Coates

✉ dougcoates@fastmail.com   🌐 douglascoates.github.io   🆔 0000-0003-3121-3335   arXiv arxiv.org/a/coates_d_1

RESEARCH POSITIONS

Postdoctoral Researcher, FAPERJ Nota 10 position under the supervision of Katrin Gelfert, Universidade Federal do Rio de Janeiro, Brazil — Mar. 2025 – Present

Postdoctoral Researcher, FAPESP funded position under the supervision of Ali Tahzibi, Universidade de São Paulo, São Carlos, Brazil — Jul. 2023 – Mar.2025

Postdoctoral Research Associate, EPSRC funded position under the supervision of Mark Holland, The University of Exeter, Exeter, United Kingdom — Apr. 2022 – Apr. 2023

Postdoctoral Researcher, under the supervision of Sylvain Crovisier, Université Paris Saclay (CNRS), Paris, France — Sep. 2021 – Mar. 2022

PUBLICATIONS AND PREPRINTS

[1] Douglas Coates and Stefano Luzzatto. "Persistent Non-statistical Dynamics in One-Dimensional Maps". In: *Communications in Mathematical Physics* 405.4 (2024), p. 102. DOI: 10.1007/s00220-024-04957-0.

[2] Douglas Coates, Ian Melbourne, and Amin Talebi. "Natural Measures and Statistical Properties of Non-Statistical Maps with Multiple Neutral Fixed Points". 2024. DOI: 10.48550/arXiv.2407.07286.

[3] Douglas Coates, Stefano Luzzatto, and Mubarak Muhammad. "Doubly Intermittent Full Branch Maps with Critical Points and Singularities". In: *Communications in Mathematical Physics* 402.2 (2023), pp. 1845–1878. DOI: 10.1007/s00220-023-04766-x.

[4] Douglas Coates. "Semi-Stable Laws for Intermittent Maps". 2021. URL: https://ore.exeter.ac.uk/repository/handle/10871/124410.

[5] Douglas Coates, Mark Holland, and Dalia Terhesiu. "Limit Theorems for Wobbly Interval Intermittent Maps". In: *Studia Mathematica* 261.3 (2021), pp. 269–305. DOI: 10.4064/sm200427-21-11.

EDUCATION

PhD. Mathematics, under the supervision of Mark Holland and Dalia Terhesiu, — Oct. 2016 – Jan. 2021

MSci Mathematics, University of Bristol — Sep. 2012 – Sep. 2016

VISITING POSITIONS

Visitor of *Katrin Gelfert*, **Universidade Federal do Rio de Janeiro**, Rio de Janeiro, Brazil — Jun. 2023

Visitor of *Lorenzo Diaz*, **Pontifícia Universidade Católica do Rio de Janeiro**, Rio de Janeiro, Brazil — May 2023

Visitor of *Ali Tahzibi*, **University of São Paulo, ICMC**, São Carlos, Brazil — Nov. 2022

Visitor of *Marcelo Viana*, **Instituto de Matemática Pura e Aplicada**, Rio de Janeiro, Brazil — Oct. – Nov. 2022

Visitor of *Stefano Luzzatto*, **The Abdus Salam International Centre for Theoretical Physics**, Trieste, Italy — May – Dec. 2022

Visitor of *Stefano Luzzatto*, **The Abdus Salam International Centre for Theoretical Physics**, Trieste, Italy — Feb. – Aug. 2021

TEACHING, SUPERVISION AND OUTREACH ACTIVITIES

Teaching positions

Lecturer, International Mathematics Master, Algeria *Responsibilities*: lecturing, course design, exam preparation and marking, *Courses*: 30 hour postgraduate course in probability theory — Dec. 2024

Teaching Assistant, Universidade de São Paulo (ICMC), São Carlos, Brazil — Aug. 2023 – Mar. 2025
Responsibilities: lecturing. *Courses*: post-graduate course in ergodic theory,

Academic Program Manager and Senior Tutor, International Mathematics Master (ICTP-UNESCO development program in COMSATS University, Lahore, Pakistan), *Responsibilities*: problems classes, lecturing, course preparation, administration, exam writing, supervision of master's thesis — Jul. 2020 – Jan. 2022
Courses: post-graduate courses in commutative algebra, real analysis and measure theory, differential geometry, probability, dynamical systems, functional analysis, differential equations

Teaching Assistant at ICTP, Trieste, Italy — Feb. – Aug. 2021
Responsibilities: problems classes, homework marking
Courses: dynamical systems and ergodic theory (master's level)

Teaching Assistant at the University of Exeter, Exeter, UK — 2016 – 2020
Responsibilities: problems classes, exam marking, homework marking
Courses: mathematical structures (1st year), mathematical methods (1st year), signals series and transforms (2nd/3rd year), stochastic processes (2nd/3rd year), metric spaces and topology (3rd/4th year)

Short courses

Some statistical properties of non-statistical maps – 6 hour mini-course, ICMC USP — May 2024

Markov-chains and the Perron-Frobenius theorem – 6 hour online preparatory mini-course for the "VII Escola Brasileira de Sistemas Dinâmicos" — Oct. 2023

Limit theorems in dynamical systems using transfer operator methods – 6 hour mini-course joint between PUC-UFRJ — Jun. 2023

SELECTED RESEARCH TALKS

Weak physical measures and statistical properties of some non-statistical maps, Dynamical systems seminar Universidade Federal do Rio de Janeiro, Basil, — Apr. 2024

Persistent non-statistical behaviour in one-dimension, Conference on Dynamics and Finance: from KAM Tori to ETFs, International Centre for Theoretical Physics (ICTP), Trieste, Italy — Oct. 2023

Persistent non-statistical behaviour in one-dimension Dynamical systems seminar Instituto de Matematica pura e Aplicada, Rio de Janeiro, Basil — July 2023

Persistent non-statistical behaviour for interval maps with neutral fixed points EDAÌ seminar, Pontifícia Universidade Católica do Rio de Janeiro, Brasil — May 2023

Persistent non-statistical behaviour for interval maps with neutral fixed points University of Exeter, Exeter, United Kingdom — Apr. 2023

Limit theorems for intermittent maps with critical points Dynamical systems seminar, Universidade de São Paulo, São Carlos, Brasil — Nov. 2022

Intermittency and non-statistical behaviour Jangada Dinamica Conference – Universidade Federal do Ceará Fortalexza, Brasil — Nov. 2022

Stable laws for intermittent maps with critical points and/or singularities Dynamical systems seminar, Université Paris Saclay, Paris, France   Sep. 2021

EVENTS ORGANISED

Probabilistic methods for non-stationary dynamical systems – two day meeting   April 2023
and workshop on the applications of probabilistic techniques to random and
non-stationary dynamical systems. *University of Exeter*

LANGUAGES

English – Fluent,   Italian – Fluent,   Spanish – Fluent,   Portuguese – Intermediate.